The mission of the Department is to provide the highest quality programs to educate students in the principles and applications of Chemical and Biomolecular Engineering. The excellence of the program is ensured by the high regard for teaching, strong research activities and solid industrial ties. The program educates students to take leadership roles in industry, academia and government.

The Undergraduate Curriculum

The coursework necessary to graduate with a B.S. degree in Chemical Engineering can be grouped into the following categories: (1) the engineering courses, including the core chemical engineering courses, engineering technical electives, and the advanced chemistry courses; (2) the basic science and mathematics sequence, which also satisfy the university’s scientific inquiry requirements; (3) the university’s cultural knowledge (humanities, fine arts, and social science) elective courses, TIDES, public service, and the writing requirement; and (4) the technical/engineering elective courses.

The department offers great flexibility in the choice of technical/engineering electives. This flexibility provides the student with significant exposure to technical and business fields that are distinct from chemical engineering, but that help develop complementary skills very useful to a chemical engineer’s career goals. This is done by developing a “concentrations-oriented” sequence of technical electives in biomolecular engineering, environmental studies, or materials engineering. Students who wish to obtain advanced degrees in chemical engineering may also take introductory level graduate courses to enhance preparation for graduate school. Students who do not wish to specialize in the concentration-oriented technical elective sequence have a wide variety of courses from which to choose their technical electives.

The Concentration Oriented Curriculum

Technical Electives

In addition to the required core chemical engineering courses, the basic science and mathematics sequence, and the cultural knowledge courses, four technical electives will be required; two of which must be in one of the engineering subject areas (e.g. CENG, BMEN, ENGR, or ENGP). These technical electives may (but need not) constitute a concentration in one of the four areas: biomolecular engineering, environmental studies, and materials engineering. A concentration consists of four courses in the following tracks:

1. Biomolecular Engineering
CENG 250 (required course), and 4 courses chosen from:
2. Environmental Studies
CENG 413/613, and three courses chosen from Environmental Biology, Environmental Geology, or Environmental Studies. These three courses must be approved by the department.

3. Materials Engineering
ENGR 312, CHEM 321 (also an Adv. Chem. Elective) and 3 courses chosen from:
CENG 413/613, CENG 455/655, CENG 489, BMEN 323.

With the exception of Environmental Studies, each of the above concentrations contains two or more courses from an engineering subject area. Note that for the Environmental Studies concentration, additional engineering courses will be required to satisfy the engineering technical elective requirement.

Other Technical Electives
Technical electives are normally engineering, science, math, or approved business courses. Approved business courses are ACCN 201, ACCN 301, FINE 301, MHSC 301, and CBMA 301. Note that several of these require prerequisites (e.g. ECON 101, MATH 123, and PSYC 101) which students may or may not be able to use to satisfy their cultural knowledge requirements. Students may also petition the department through their advisor or the department chair, to have courses fulfill the technical elective requirement. The student should submit a brief request, in writing, indicating which course is being submitted for approval. The course catalog description of the course and most recent syllabus (available through the department of instruction) must accompany the request. The student will be informed in writing within two weeks of the request whether the course has been approved as a technical elective. It will then be general policy that this course is acceptable as a technical elective, and will be added to the list of approved technical electives. An advanced technical elective is a 300-level or above course that meets the above requirements. An advanced engineering technical elective is a 300-level or above course from an engineering subject area.

Undergraduate Core Requirements
The following courses are required by the university to obtain a degree:

- Writing (ENGL 101, 4 credits)
- Chemical engineering majors are not required to satisfy the foreign language requirement.
- Scientific inquiry (9-12 credits). This requirement is satisfied by the basic mathematics and science sequence comprising MATH 121, 122, 221, 224; PHYS 131, 132; and CHEM 107/117, 108/118.
- Cultural Knowledge (18 credits); satisfied by 18 credits including at least six credit hours of Humanities/Fine Arts and at least six credit hours of Social Science.
- Public Service (2-3 credits)
- TIDES: satisfied by TIDE 145
- Capstone Experience (3+ credits): satisfied by CENG 431.
Certain modifications to the freshman program may be made by:

- Achievement of advanced standing through Advanced Placement Tests offered by the CEEB.
- Use of advanced placement tests in mathematics and chemistry offered on campus during Orientation Week.
- Submission of transcripts from other universities for equivalent courses taken prior to entering Tulane.

* Each freshman is assigned an individual faculty advisor early in the first semester and is expected to consult with him or her regularly. Each upper class is assigned a faculty member to serve as the advisor. Faculty members keep posted office hours for that purpose and are readily available for conferences.

**ROTC courses**

ROTC courses, if elected, are taken in addition to the normal courses. ROTC students may receive 6 technical elective credits for their ROTC courses.
## CHEMICAL ENGINEERING PROGRAM OF STUDY

### Core Chemical Engineering Courses

Courses numbered in the 100s normally are taken in the freshman year; 200s in the sophomore year; 300s in the junior year; and 400s in the senior year. Graduate courses are those numbered in the 600s and 700s; 600-level courses may be taken by advanced undergraduates. The numbers in parentheses next to the course title indicate the course credit. The contact hours, or the actual number of weekly hours of lecture, laboratory, and other class work, are indicated after the credit.

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<table>
<thead>
<tr>
<th>First Year</th>
<th>Second Year</th>
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<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>CHEM 107, 117 Chemistry I and Lab</td>
<td>CENG 211 Material and Energy Balances</td>
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<tr>
<td>PHYS 131 General Physics I and Lab</td>
<td>CENG 212 Thermodynamics I</td>
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<tr>
<td>MATH 121 Calculus I</td>
<td>CHEM 241 Organic Chemistry I</td>
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<td>ENGR Engineering TIDES</td>
<td>CHEM 243 Organic Chemistry Lab I</td>
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<td>ENGL 101 Writing</td>
<td>MATH 221 Calculus III</td>
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<td><strong>Spring Semester</strong></td>
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<tr>
<td>CHEM 108, 118 General Chemistry II and Lab</td>
<td>CENG 232 Transport Phenomena I</td>
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<tr>
<td>PHYS 132 General Physics II and Lab</td>
<td>CENG 250 Intro to Biotech &amp; Biomolecular Engr</td>
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<tr>
<td>MATH 122 Calculus II</td>
<td>CHEM 242 Organic Chemistry II</td>
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<td>CHEM 244 Organic Chemistry Lab II</td>
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<td>MATH 224 Introduction to Applied Mathematics</td>
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<td><strong>Fall Semester</strong></td>
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<td>CENG 311 Thermodynamics II</td>
<td>CENG 431 Chemical Process Design</td>
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<td>CENG 323 Numerical Methods for Chemical Engrs.</td>
<td>CHEM Advanced Chemistry*</td>
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<td>CENG 333 Transport Phenomena II</td>
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<td><strong>Spring Semester</strong></td>
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<td>CENG 324 Unit Operations Lab</td>
<td>CENG 460 Practice School I</td>
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<td>CENG 334 Separation Processes</td>
<td>CENG 462 Practice School II</td>
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<td>CENG 415 Kinetics &amp; Reactor Design</td>
<td>CENG 450 Process Control</td>
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<td>CENG 302 Chemistry &amp; Engineering Science in</td>
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<td>CHEM Advanced Chemistry*</td>
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<td>CENG 431 Chemical Process Design</td>
<td>CENG 460 Practice School I</td>
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*Advanced Chemistry course can be chosen from Applied Biochemistry (CENG 445/446), Physical Chemistry (CHEM 311, 312), Inorganic Chemistry (CHEM 321) or Biochemistry (CHEM 383, 384). Other course with permission only.*
CENG 211 Material and Energy Balances (3) Lecture 3.
Prerequisites: CHEM 108, MATH 122. Basic concepts in mass and energy balances are presented in this introduction to chemical process engineering. Properties of pure materials and relevant equations of state are reviewed in illustrative examples.

CENG 212 Thermodynamics I (3) Lecture 3.
Concepts of energy, equilibrium, and reversibility are presented in the setting of the theoretical development of classical thermodynamics. Energy conversion cycles and elementary fluid mechanics are used to illustrate applied thermodynamics in chemical process technology.

CENG 232 Transport Phenomena I (3) Lecture 3.
Prerequisites: CENG 211, 212, equivalents or approval of instructor. Principles of hydrostatics and fluid mechanics. Emphasis is on mass, energy and momentum balances. Fluid flow through pipes and other types of chemical engineering equipment are considered in detail. The fundamental operations of vector analysis and the development of basic differential equations that govern fluid flow are used to solve representative problems in which viscosity is important.

CENG 250 Introduction to Biotechnology and Biomolecular Engineering (3) Lecture 3.
This course begins with an introduction to physical and biological properties of cells through cell and molecular biology teachings, and then expands with the application of these principles to the realm of biotechnology. Theory and practice of specific laboratory techniques will be covered and demonstrated, and typical data sets will be interpreted. Applications of biotechnology in the business and medical communities will be discussed.

CENG 302 Chemistry and Engineering Science in the Community (1) Lecture 1.
Prerequisite: Junior standing. This course satisfies the university’s public-service requirement. Topics include public outreach, application of engineering principles to community issues, and educating the community on scientific and engineering issues.

CENG 311 Thermodynamics II (3) Lecture 3.

CENG 323 Numerical Methods for Chemical Engineers (3) Lecture 3.
Numerical solution of linear and nonlinear algebraic equations, and ordinary and partial differential equations. Numerical differentiation and integration. Linear and nonlinear regression analysis. Optimization methods. Applications to chemical & biomolecular engineering design-oriented problems. Excel spreadsheets are used for all computations. An introduction to Visual Basic for Applications programming is included. All applications and homework problems are related to Chemical and Biomolecular Engineering. A brief introduction to MatLab is included.

CENG 324 Unit Operations Lab I (4) Laboratory 8.
Prerequisites: CENG 211, 212, 232, and 333. Bench scale laboratory experiments in Unit Operations. Report writing, safety, oral presentations, ethics and group activities are emphasized.

CENG 333 Transport Phenomena II (3) Lecture 3.
Prerequisites: CENG 232. The analysis of problems in conductive, convective, and radiative heat transfer. The formulation and solution of heat and mass transfer problems by means of shell balances. Exact and numerical solutions to heat and mass transfer problems. Correlations for convective heat transfer. Analogies between heat and mass transfer. The application of basic principles of heat/mass transfer to heat exchange, evaporation, condensation, boiling and drying operations.

CENG 334 Separation Processes (3) Lecture 3.
Prerequisites: CENG 232, CENG 333, equivalent, or approval of instructor. The analysis and design of mass-transfer based separation processes. Fundamental concepts are derived and applied to representative industrial process configurations. Subject area coverage includes the fundamentals of mass transfer, as well
as the design of countercurrent operations such as gas-liquid absorption, distillation, liquid-liquid extraction and leaching.

CENG 413 Surface and Colloid Phenomena (3) Lecture 3.
A study of surface and colloid chemistry. Topics include characterization of particles and surfaces, stability of colloidal systems, interactions of charged particles, and electrokinetic phenomena.

CENG 415 Reactor Design (3) Lecture 3.
Prerequisite: MATH 224. The design and analysis of chemical, biological, and polymerization reactor systems are achieved by application of the principles of chemical kinetics and equilibrium coupled with mass and energy transport. Specific areas of study include kinetics, ideal reactors, multiple reactor systems, nonideal flow and mixing, and catalysis.

CENG 431 Chemical Process Design (3) Lecture 3.
Prerequisites: Senior standing or departmental approval. The elements of industrial design and supporting economics are presented in the context of a representative design project. Extension of the student’s early background in unit operations through practical design considerations including materials of construction is accomplished. Methods are presented for capital and operating cost estimation, raw materials and utilities pricing, and assembly of investment costs, taxes, environmental and other site requirements. Realistic design constraints are included; e.g., economic factors, safety, reliability aesthetics, ethics, and social impact.

CENG 440 Introduction to Gene Therapy (3) Lecture 3.
A survey into the fundamental aspects of gene delivery and their application to gene therapy. Topics include various gene carriers, carrier/DNA interaction and complex formation, complex interactions with cells and cell structures, targeting, gene therapy applications, host response. A knowledge of cell and molecular biology is not required.

Prerequisite: CHEM 241/243. Biochemistry is the study of the chemistry and chemical processes involved with the molecules that are utilized by living organisms. This two-semester series will provide an in-depth coverage of carbon- and nitrogen-containing molecules such as proteins and DNA and certain cofactors. In the first semester enzyme kinetics and catalysis will be covered, along with carbohydrates and their metabolism. The metabolic pathways and associated bioenergetics of glycolysis and the TCA cycle will be examined in detail. The material will be related to everyday life, diet, nutrition, and exercise performance.

CENG 446 Applied Biochemistry II (3) Lecture 3.
Prerequisite: CENG 445. This course is a continuation of CENG 445 (please refer to the related course description). Principles taught in CENG 445 will be extended as they are applied to lipids and nitrogen-containing molecules, and the metabolism of each. Example molecules include fats, triglycerides, DNA, amino acids, heme, and urea. The interplay of biochemistry and molecular biology will also be examined.

CENG 450 Chemical Process Control (3) Lecture 3.
Prerequisite: MATH 224. An introduction to linear control theory is presented in which processes are described mathematically through transfer functions and conventional three-mode controllers are specified. Other topics are introduced including inverse response, cascade control, feedforward control, dead-time compensation, and multivariable control. Automatic control systems are designed for a number of actual non-linear processes described by computer software.

CENG 455 Sol-Gel Science (3) Lecture 3.
A study of chemistry, physics, and applications of sol gel processing. Designs and fabrications of functional and nanostructured materials. Recent advances of sol-gel science in nanotechnology, microelectronics, and biomedical engineering.

CENG 460 and 462 Practice School or Cooperative Work Program (3 ea.) Lecture plus Practicum 8.
Prerequisite: Senior Standing. Students are placed in groups of three or four and are assigned to a project at a local industrial facility, hospital, or government agency. The project is one of current concern to the
organization and may range from a study of an operating process to the development of a new process. The projects are open ended and the students are expected to apply the principles of good design practice involving realistic constraints such as economics, safety, reliability, aesthetics, ethics, and social impact. Students normally are assigned to a project which fulfills certain career goals. This internship, under the direction of a faculty member, utilizes engineers and other personnel at the host site. Students are required to submit interim and final written and oral reports.

Students in the chemical and biomolecular engineering program may participate in the department’s cooperative work program. This program allows students considering employment after the B.S. degree to gain valuable work experience in the chemical engineering field during their undergraduate career. In the Fall semester of their second year, students are interviewed by employers for three individual work periods (the two summers following the second and third years of study and part-time during the spring semester of the fourth year). To participate, students must commit to work for the same employer during all three sessions. Those who complete all three sessions with satisfactory performance will receive six credits at the conclusion of the fourth year spring semester and do not have to participate in Practice School to graduate. Students who stop participating in the coop program must register for and participate in Practice School during the spring semester of their fourth year of study. All exceptions to these guidelines must be decided by the department’s undergraduate curriculum committee.

**CENG 471 Biochemical Engineering (3) Lecture 3.**
Prerequisite CENG 250 or equivalent. An advanced course in biochemical engineering. Topics include enzyme catalyzed and cell-associated reactions, engineering aspects of recombinant DNA technology, cell culture, bioreactors and tissue engineering.

**CENG 477 Advances in Biotechnology (3) Lecture 3.**
The objectives of the course are to enhance understanding of the basic principles of biotechnology and to introduce the most current biotechnology research. Topics include gene therapy, microbial pesticides, genetically engineered food, stem-cell technology and tissue engineering.

**CENG 481/482 Undergraduate Independent Studies (2-4).**
Under special circumstances, course credit is granted to students undertaking independent research studies. A project advisor should be identified and permission for enrollment filed with the department chair prior to registration.

**CENG 489 Polymer Engineering and Science (3) Lecture 3.**
Fundamentals of polymer science and engineering, including synthesis, characterization, properties and processing of polymeric materials. An overview of polymer structure, including classification, tacticity, conformation and configuration will be given. Synthetic techniques will be reviewed, including addition and condensation polymerization and copolymerization. Polymer thermodynamics will be described, including an introduction to Flory-Huggins theory, as well as polymer-polymer miscibility and blends. A brief overview of characterization will be given, including molecular weight and glass transition temperature determination. Properties will be discussed, including mechanical properties of semi-crystalline polymers and elastomers. The time-temperature superposition principle will be described, as well as a brief introduction to processing techniques.

**CENG 491/492 Undergraduate Independent Studies (1-4).**
Under special circumstances, course credit is granted to students undertaking independent research studies. A project advisor should be identified and permission for enrollment filed with the department chair prior to registration.

**CENG 600 Chemical Engineering Research Seminar (0) Lecture 1.**
Students are exposed to the important research findings, presented by invited speakers as well as by professors and advanced Ph.D. candidates of our own department.
CENG 601 Mathematical Methods for Engineers (3) Lecture 3.
Prerequisite: MATH 224. Review of calculus and ordinary differential equations, series solutions and special functions, complex variables, partial differential equations, and integral transforms.

CENG 611 Thermodynamics and Properties of Matter (3) Lecture 3.
Prerequisite: CENG 311. Molecular thermodynamics of multi-component systems are reviewed with particular attention to separation processes. Thermal and chemical equilibrium properties are examined for pure and mixed fluids.

CENG 612 Graduate Transport Phenomena (3) Lecture 3.
Prerequisites: CENG 232, 333, 334, and MATH 221, MATH 224 or equivalents. Mathematical formulation and solution of problems involving theoretical concepts in fluid mechanics, heat and mass transfer, thermodynamics and elementary reaction theory. Emphasis is placed upon transient transport processes and the associated partial differential equations.

CENG 613 Surface and Colloid Phenomena (3) Lecture 3.
A study of surface and colloid chemistry. Topics include characterization of particles and surfaces, stability of colloidal systems, interactions of charged particles, and electrokinetic phenomena.

CENG 616 Heterogeneous Catalysis (3) Lecture 3.
A study of the fundamental concepts underlying catalytic processes in the petroleum processing industry and in synthetic fuels research. Topics include molecular theories of adsorption and catalysis, catalyst design and formulation, instrumental methods of catalyst characterization, transport in catalysts, shape-selective catalysis, etc. Applications discussed include catalytic cracking, reforming, hydrodesulfurization, Fischer-Tropsch synthesis, direct and indirect coal liquefaction, etc.

CENG 625 Applied Numerical Analysis (3) Lecture 3.
Prerequisite: CENG 323 or equivalent, MATH 224. Numerical techniques for the solution of mathematical problems in the engineering analysis of systems are presented for computer implementation. Topics include interpolation, integration, solution of systems of linear and nonlinear algebraic equations, optimization, and regression. A comparison of numerical solution methods for ordinary and partial differential equations is given. Eigenvalue and split boundary problems are included.

CENG 633 Advanced Separations Design (3) Lecture 3.
Prerequisites: CENG 232, 333, 334 or approval of instructor. Design of separations processes based upon newer technologies. Special emphasis is placed upon membrane separations and those processes involving colloidal and surface phenomena.

CENG 640 Introduction to Gene Therapy (3) Lecture 3.
A survey into the fundamental aspects of gene delivery and their application to gene therapy. Topics include various gene carriers, carrier/DNA interaction and complex formation, complex interactions with cells and cell structures, targeting, gene therapy applications, host response. A knowledge of cell and molecular biology is not required.

CENG 642 Advanced Materials Design (3) Lecture 3.
Prerequisite: consent of instructor. Fundamentals of condensed matter are elaborated upon, namely bonding, structure, physical properties, phase equilibria and thermodynamics of solids. Characterization of condensed phases as it reviewed. Manipulation of material properties for specific applications is discussed.

CENG 645 Applied Biochemistry I (3) Lecture 3.
Prerequisite: CHEM 241/243. Biochemistry is the study of the chemistry and chemical processes involved with the molecules that are utilized by living organisms. This two-semester series will provide an in-depth coverage of carbon- and nitrogen-containing molecules such as proteins and DNA and certain cofactors. In the first semester enzyme kinetics and catalysis will be covered, along with carbohydrates and their
metabolism. The metabolic pathways and associated bioenergetics of glycolysis and the TCA cycle will be examined in detail. The material will be related to everyday life, diet, nutrition, and exercise performance.

CENG 646 Applied Biochemistry II (3) Lecture 3.
Prerequisite: CENG 645. This course is a continuation of CENG 645 (please refer to the related course description). Principles taught in CENG 645 will be extended as they are applied to lipids and nitrogen-containing molecules, and the metabolism of each. Example molecules include fats, triglycerides, DNA, amino acids, heme, and urea. The interplay of biochemistry and molecular biology will also be examined.

CENG 655 Sol-Gel Science (3) Lecture 3.
A study of chemistry, physics, and applications of sol gel processing. Designs and fabrications of functional and nanostructured materials. Recent advances of sol-gel science in nanotechnology, microelectronics, and biomedical engineering.

CENG 671 Biochemical Engineering (3) Lecture 3.
Prerequisite CENG 250 or equivalent. An advanced course in biochemical engineering. Topics include enzyme catalyzed and cell-associated reactions, engineering aspects of recombinant DNA technology, cell culture, bioreactors and tissue engineering.

CENG 677 Advances in Biotechnology (3) Lecture 3.
The objectives of the course are to enhance understanding of the basic principles of biotechnology and to introduce the most current biotechnology research. Topics include gene therapy, microbial pesticides, genetically engineered food, stem-cell technology and tissue engineering.

CENG 686 Readings and Research (2-4).

CENG 689 Polymer Engineering and Science (3) Lecture 3.
Fundamentals of polymer science and engineering, including synthesis, characterization, properties and processing of polymeric materials. An overview of polymer structure, including classification, tacticity, conformation and configuration will be given. Synthetic techniques will be reviewed, including addition and condensation polymerization and copolymerization. Polymer thermodynamics will be described, including an introduction to Flory-Huggins theory, as well as polymer-polymer miscibility and blends. A brief overview of characterization will be given, including molecular weight and glass transition temperature determination. Properties will be discussed, including mechanical properties of semi-crystalline polymers and elastomers. The time-temperature superposition principle will be described, as well as a brief introduction to processing techniques.

CENG 712 Thermodynamics of Macromolecules (3) Lecture 3.
Prerequisite: 611 or equivalent. Thermodynamics is applied to macromolecules. Fundamentals of the thermodynamics of polymers in solution and in the melt. Topics of polymer self-assembly, polymer-surfactant interactions, and polymer nanocomposites are incorporated in the course. Students will learn methods of characterization of polymer thermodynamics using spectroscopy, microscopy and scattering techniques.

CENG 715 Advanced Reactor Design (3) Lecture 3.
The course covers the fundamental principles and methods of statistical mechanics. Emphasis is placed on applications to thermodynamics, phase behavior, polymer science and self-assembly phenomena.

CENG 781, 782 Advanced Independent Research (3,3)
Research studies performed under faculty tutelage by prior arrangement.
CENG 788 Polymer Rheology (3) Lecture 3.
Non-Newtonian phenomena, material functions and generalized Newtonian fluids, rheometry, linear viscoelasticity, multiphase systems and mixing.

CENG 789 Adv Macromolecular Chemistry and Materials (3) Lecture 3.
This course will cover various topics on the design, synthesis and applications of polymers and nanocomposites. The goals of this course are to teach the students basic polymer science, in particular, polymer synthesis and characterization, and to expose the students to the current-state-of-art polymer research. The representative topics include basic polymer synthesis and characterization, supramolecular assembly, functional polymers, polymeric nanocomposites, biopolymers, and polymeric devices.

CENG 791-794 Master’s Level Research Orientation and Methods (1,1,1,1)
CENG 891, 892 Doctoral Level Research Seminar (1,1)
CENG 998 Master’s Research
CENG 999 Dissertation Research

Premedical Curriculum in Chemical Engineering
A premedical program via the chemical engineering curriculum provides an excellent foundation for medical studies. If the student does not proceed to medical school, there is an opportunity for a professional career in industry.

Premedical students make the following changes:

Technical Elective can be replaced with either of the two biology courses, EEOB 101. 111 and CELL 101, 111. The remaining biology course must be taken, but will not count toward a degree in chemical engineering.

Premedical students should also take a second English course as one of their humanities and social science electives. Some medical schools may require it.

Minors & Second Majors
A Chemical Engineering student may also elect to pursue a major or minor in another division of the university. Anyone who is interested should contact the appropriate department chair and work out a program of courses. This should be approved by the department chair and forwarded to the dean’s office. When all requirements are met, the transcript will reflect that a major or minor has been completed.

Since many of the engineering students elect to add a minor in business or a minor or major in mathematics, these programs are as follows.

Business Minor
An undergraduate business minor is awarded for the following coursework.

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<th>Course</th>
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<tr>
<td>ECON 101</td>
<td>Microeconomics</td>
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<tr>
<td>ACCT 201</td>
<td>Financial Accounting</td>
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And any four of the following:
ACCT 301  Managerial Accounting
FINC 301  Financial Management
MHSC 301  Organization Behavior
CBMA 301  Consumer Behavior/Marketing Fundamentals
ISPM 101  Intro to Business Computing
ISPM 301  Business Modeling
LGST 301  Legal, Ethical, & Regulatory Environment of Business
MOCO 301  Management Communication

Plus:
One additional 3-credit course (300-400 level) from the A. B. Freeman School of Business.

Mathematics Minor
A mathematics minor is awarded for the following coursework.

MATH 121, 122, 221  Calculus I, II, III
MATH 224  Introduction to Applied Math or
MATH 217  Discrete Math
MATH 309  Linear Algebra

Plus:
One additional course at the 300 level or above.

Mathematics Major
All requirements for the minor
Plus:
MATH 305, and
Two additional courses at the 300 level or above, one of which must be a 400 level course.

Students contemplating either a minor or major in mathematics should consult with an advisor in the Department of Mathematics during the spring of the sophomore year.

If a liberal arts degree is desired, then all liberal arts, as well as departmental requirements, must be met. Also, the student must spend one year in the School of Liberal Arts to fulfill the residency requirement.
FACULTY ROSTER

PROFESSORS


Vijay T. John, Department Chair, Engr. Sc.D., Columbia University, 1982; Chemical Engineering. Nanotechnology, Biotechnology.


ASSISTANT PROFESSORS


PROFESSOR OF PRACTICE


PROFESSOR EMERITUS

ADJUNCT PROFESSOR